National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 862

High-Temperature Alloy L 605

(In Cooperation with the American Society for Testing and Materials)

This Standard Reference Material (SRM) is in the form of chips sized between 0.35 and 0.85 mm sieve openings (46 and 20 mesh). It is intended primarily for use in chemical methods of analysis. Similar material for use in spectrometric methods of analysis is available as SRM 1242.

Element	Certified Value[1] % by wt.	Estimated Uncertainty[2]
Carbon[a]	0.120	0.003
Manganese[b,c,d,e,f]	1.59	0.05
Phosphorus[b,c,e,g,h]	0.002	0.001
Sulfur[a]	0.0008	0.0002
Silicon[b,c,e,g,h,i]	0.017	0.003
Copper[b,e,f,g,h]	0.0010	0.0005
Nickel[e,f,h,j,k]	9.74	0.06
Chromium[d,e,f,h]	20.0	0.1
Vanadium[b,e,f,h]	0.005	0.002
Iron[b,d,e,f,h]	1.80	0.04
Tungsten[e,f,h,j]	15.1	0.1
Cobalt[e,f,h,k]	51.5	0.3
Nitrogen[a]	0.026	0.001

[1]The certified value listed for a constituent is the present best estimate of the "true" value based on the results of the cooperative program for certification.

[2]The estimated uncertainty listed for a constituent is based on judgment and represents an evaluation of the combined effects of method imprecision, possible systematic errors among methods, and material variability. No attempt was made to derive exact statistical measures of imprecision because several methods were involved in the determination of most constituents.

Methods/Techniques

a-Combustion-Infrared Detection
b-Atomic Absorption Spectrometry
c-Spectrophotometry
d-Titrimetry
e-DC Plasma Spectrometry
g-Optical Emission Spectrometry
h-X-ray Fluorescence Spectrometry
i-Gravimetry
j-Ion-exchange separation-Gravimetry
k-Ion-exchange separation-Titrimetry

The overall coordination of the technical measurements leading to certification was performed under the direction of J.I. Shultz, Research Associate, ASTM/NIST Research Associate Program.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Standard Reference Materials Program by P.A. Lundberg.

Gaithersburg, MD 20899
October 18, 1991

William P. Reed, Chief
Standard Reference Materials Program

(over)

PLANNING, PREPARATION, TESTING, ANALYSIS:

The material for this SRM was provided by Carpenter Technology Corporation, Reading, Pennsylvania.

Homogeneity testing was performed at NIST by J.A. Norris, and by A. Johnson Metals, Inc., Exton, Pennsylvania, L.E. Creasy, and R. Peterson.

Cooperative analyses for certification were performed in the following laboratories:

-Allegheny Ludlum Steel Corp., Technical Center, Brackenridge, Pennsylvania, R.M. Crain, G.L. Bergstrom, C.C. Gabrielli, and S.A. Bissell-Seymour.

-Analytical Associates, Inc., Detroit, Michigan, C.K. Deak.

-Axel Johnson Metals, Inc., Exton, Pennsylvania, L.E. Creasy, and R. Peterson.

-Carpenter Technology Corp., Carpenter Steel Division, Reading, Pennsylvania, T.R. Dulski, R.R. Buehrer, R.R. Bixler, and A.A. Mattiuz.

-Cytemp Specialty Steel Division, Cyclops Corporation, Titusville, Pennsylvania, R. Gardiner, L. Carter, R. Ewing, C. Slater, B. Bronson, J. Reynolds, D. Lorenz, and J. Guerra.

-General Electric Aircraft Engines, Cincinnati, Ohio, D.J. Parker, R.S. Soman, and W.H. Johnstone.

-General Electric Aircraft Engines, Cincinnati, Ohio, R.D. Deutsch, and K. Rogers.

-Inco Alloys International, Inc., Hungtington, West Virginia, F.A. Blair and J.M. Arritt.

-Techni-Cast Corp., South Gate, California, R. Conger.

Elements other than those certified may be present in this material as indicated below. These are not certified, but are given as additional information on the composition.

Element	Concentration % by wt.
Aluminum	(<0.01)
Antimony	(<0.0001)
Arsenic	(<0.0001)
Bismuth	(<0.0001)
Boron	(<0.0001)
Lead	(<0.0001)
Magnesium	(<0.001))
Niobium	(<0.005)
Selenium	(<0.0001)
Tantalum	(<0.01)
Tellurium	(<0.0001)
Tin	(<0.001)
Zinc	(<0.005)
Zirconium	(<0.01))